

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF THE CLAIMS:**

Claim 1. (Currently Amended) A method comprising:

processing a data packet, having a destination IP address ( $d$ ), towards a routing destination; and

determining a default-route-prefix ( $P_d$ ) that is a part of the destination IP address and is provided only in a routing table cache ( $L_1$ ) during a default-route determination step, when in the routing table cache ( $L_1$ ) and in a routing table ( $L_2$ ), there is no entry with a destination address prefix that is a prefix of the destination IP address ( $d$ ), wherein the default-route-prefix ( $P_d$ ) is a shortest prefix that covers only destination IP addresses that have no matching prefix in the routing table ( $L_2$ ),

wherein the routing table cache ( $L_1$ ) comprises a prefix that is a part of a destination IP address and the destination IP address.

Claim 2. (Previously Presented) The method as recited in claim 1, wherein the default-route-prefix ( $P_d$ ) is determined to be said prefix of at least the destination IP address ( $d$ ).

Claim 3. (Previously Presented) A method as recited in claim 1, wherein in a first lookup step for the destination IP address ( $d$ ) the destination address prefix being a prefix thereof is searched in the routing table cache ( $L_1$ ), and wherein if said first lookup step results in not finding such

destination address prefix, in a second lookup step for said destination IP address ( $d$ ) the destination address prefix being a prefix thereof is searched in the routing table ( $L_2$ ).

Claim 4. (Previously Presented) The method as recited in claim 3, wherein if the second lookup step on the routing table ( $L_2$ ) results in finding the destination address prefix being said prefix of the destination IP address ( $d$ ) a matching destination address prefix, the found destination address prefix entry is entered into the routing table cache ( $L_1$ ) in a cache update step, and the data packet is forwarded in a destination forwarding step to a corresponding routing destination.

Claim 5. (Previously Presented) The method as recited in claim 3, wherein if the second lookup step results in not finding the destination address prefix being said prefix of the destination IP address ( $d$ ), in a default forwarding step the data packet is forwarded to a default routing destination.

Claim 6. (Previously Presented) The method as recited in claim 1, wherein in a default-route caching step, the default-route-prefix ( $P_d$ ) is entered together with a default routing destination as an entry into the routing table cache ( $L_1$ ).

Claim 7. (Currently Amended) The method as recited in claim 3, wherein in the first lookup step the routing table cache ( $L_1$ ) is searched for covering path entries that reside in the routing table cache ( $L_1$ ), the covering path entries ~~in their totality being a prefix for at least all destination address prefixes existing in the routing table ( $L_2$ )~~ covering all prefixes that exist in the routing

table (L<sub>2</sub>).

Claim 8. (Previously Presented) The method as recited in claim 7, wherein in an event that the first lookup step results in finding no covering path entry for the destination IP address (d), the data packet is forwarded to a default routing destination in a default forwarding step.

Claim 9. (Previously Presented) The method as recited in claim 7, wherein in an event that the first lookup step results in finding one of said covering path entry for the destination IP address (d), in the second lookup step for said destination address (d) the destination address prefix being said prefix of the destination address (d) is searched in the routing table (L<sub>2</sub>).

Claim 10. (Previously Presented) The method as recited in claim 3, wherein in an event that the first lookup step results in finding the destination address prefix being said prefix of the destination IP address (d), the data packet is forwarded in a destination forwarding step to a corresponding routing destination.

Claim 11. (Currently Amended) A method comprising:

processing a data packet, having a destination IP address (d), towards a routing destination, wherein a default-route-prefix (P<sub>d</sub>) that is a part of an IP address resides together with a default routing destination as an entry in a routing table cache (L<sub>1</sub>), wherein the default-route-prefix (P<sub>d</sub>) is a shortest prefix that covers only destination IP addresses that have no matching prefix in a routing table (L<sub>2</sub>); and

forwarding the data packet to said default routing destination, when the default-route-prefix ( $P_d$ ) matches at least part of said destination IP address ( $d$ ).

Claim 12 –15. (Canceled)

Claim 16. (Currently Amended) An apparatus comprising:

means for processing a data packet, having a destination IP address ( $d$ ), towards a routing destination; and

means for determining a default-route-prefix ( $P_d$ ) that is a part of the destination IP address and is provided only in a routing table cache ( $L_1$ ) during a default-route determination step, when in the routing table cache ( $L_1$ ) and in a routing table ( $L_2$ ), there is no entry with a destination address prefix that said prefix of the destination IP address ( $d$ ), wherein the default-route-prefix ( $P_d$ ) is a shortest prefix that covers only destination IP addresses that have no matching prefix in the routing table ( $L_2$ ),

wherein the routing table cache ( $L_1$ ) comprises a prefix that is a part of a destination IP address and the destination IP address.

Claim 17. (Canceled)

Claim 18. (New) A computer program product comprising a computer usable medium having computer readable program code means embodied therein for causing a processing of a data packet, the computer readable program code means in said computer program product

comprising computer readable program code means for causing a computer to effect the steps of claim 1.

Claim 19. (New) A computer program product comprising a computer usable medium having computer readable program code means embodied therein for causing a processing of a data packet, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the steps of claim 11.